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1 [XML: Schemapath, a minimal extension to xml schema for conditional constraints](#)



Claudio Sacerdoti Coen, Paolo Marinelli, Fabio Vitali

 May 2004 **Proceedings of the 13th international conference on World Wide Web WWW '04**

Publisher: ACM Press

Full text available: pdf(198.40 KB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In the past few years, a number of constraint languages for XML documents has been proposed. They are cumulatively called *schema languages* or validation languages and they comprise, among others, DTD, XML Schema, RELAX NG, Schematron, DSD, xlinkit. One major point of discrimination among schema languages is the support of co-constraints, or co-occurrence constraints, e.g., requiring that attribute A is present if and only if attribute B is (or is not) present in the same element. Although ...

Keywords: co-constraints, schema languages, schemapath, xml



2 [A framework for implementing pluggable type systems](#)



Chris Andreae, James Noble, Shane Markstrum, Todd Millstein

 October 2006 **ACM SIGPLAN Notices , Proceedings of the 21st annual ACM SIGPLAN conference on Object-oriented programming systems, languages, and applications OOPSLA '06**, Volume 41 Issue 10

Publisher: ACM Press

Full text available: pdf(294.23 KB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Pluggable types have been proposed to support multiple type systems in the same programming language. We have designed and implemented JavaCOP, a program constraint system for implementing practical pluggable type systems for Java. JavaCOP enforces user-defined typing constraints written in a declarative and expressive rule language. We have validated our design by (re)implementing a range of type systems and program checkers. By using a program constraint system to implement p ...

Keywords: JavaCOP, pluggable type systems




3 [XSKETCH synopses for XML data graphs](#)

Neoklis Polyzotis, Minos Garofalakis



 September 2006 **ACM Transactions on Database Systems (TODS)**, Volume 31 Issue 3
Publisher: ACM Press


Full text available:  [pdf\(885.57 KB\)](#) Additional Information: [full citation](#), [appendices and supplements](#),
[abstract](#), [references](#), [index terms](#)

Effective support for XML query languages is becoming increasingly important with the emergence of new applications that access large volumes of XML data. All existing proposals for querying XML (e.g., XQuery) rely on a pattern-specification language that allows (1) *path navigation and branching through the label structure* of the XML data graph, and (2) *predicates on the values* of specific path/branch nodes, in order to reach the desired data elements. Clearly, optimizing such quer ...

Keywords: XML, approximate query processing, data synopses, path expressions

4 XML stream processing using tree-edit distance embeddings

 Minos Garofalakis, Amit Kumar
 March 2005 **ACM Transactions on Database Systems (TODS)**, Volume 30 Issue 1
Publisher: ACM Press

Full text available:  [pdf\(726.56 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We propose the first known solution to the problem of correlating, in small space, continuous streams of XML data through approximate (structure and content) matching, as defined by a general tree-edit distance metric. The key element of our solution is a novel algorithm for obliviously embedding tree-edit distance metrics into an L_1 vector space while guaranteeing a (worst-case) upper bound of $O(\log^2 n \log^* n)$ on the distance distortion between ...

Keywords: XML, approximate query processing, data streams, data synopses, metric-space embeddings, tree-edit distance


5 Research sessions: similarity and matching: Statistical synopses for graph-structured XML databases

 Neoklis Polyzotis, Minos Garofalakis
 June 2002 **Proceedings of the 2002 ACM SIGMOD international conference on Management of data SIGMOD '02**
Publisher: ACM Press

Full text available:  [pdf\(1.44 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Effective support for XML query languages is becoming increasingly important with the emergence of new applications that access large volumes of XML data. All existing proposals for querying XML (e.g., XQuery) rely on a *pattern-specification language* that allows path navigation and branching through the XML data graph in order to reach the desired data elements. Optimizing such queries depends crucially on the existence of concise synopsis structures that enable accurate compile-time sele ...

6 Expressiveness and complexity of XML Schema

 Wim Martens, Frank Neven, Thomas Schwentick, Geert Jan Bex
 September 2006 **ACM Transactions on Database Systems (TODS)**, Volume 31 Issue 3
Publisher: ACM Press

Full text available:  [pdf\(558.45 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The common abstraction of XML Schema by unranked regular tree languages is not entirely accurate. To shed some light on the actual expressive power of XML Schema,

intuitive semantical characterizations of the Element Declarations Consistent (EDC) rule are provided. In particular, it is obtained that schemas satisfying EDC can only reason about regular properties of ancestors of nodes. Hence, with respect to expressive power, XML Schema is closer to DTDs than to tree automata. These theoretical r ...

Keywords: XML, XML Schema, validation

7 DB-6 (databases): XML query processing: QFilter: fine-grained run-time XML access control via NFA-based query rewriting



Bo Luo, Dongwon Lee, Wang-Chien Lee, Peng Liu

November 2004 **Proceedings of the thirteenth ACM international conference on Information and knowledge management CIKM '04**

Publisher: ACM Press

Full text available: [pdf\(351.32 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

At present, most of the state-of-the-art solutions for XML access controls are either (1) document-level access control techniques that are too limited to support fine-grained security enforcement; (2) view-based approaches that are often expensive to create and maintain; or (3) impractical proposals that require substantial security-related support from underlying XML databases. In this paper, we take a different approach that assumes no security support from underlying XML databases and exa ...

Keywords: XML security, data security and privacy, query rewriting

8 XML access control using static analysis



Makoto Murata, Akihiko Tozawa, Michiharu Kudo, Satoshi Hada

August 2006 **ACM Transactions on Information and System Security (TISSEC)**, Volume 9 Issue 3

Publisher: ACM Press

Full text available: [pdf\(495.08 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Access control policies for XML typically use regular path expressions such as XPath for specifying the objects for access-control policies. However such access-control policies are burdens to the query engines for XML documents. To relieve this burden, we introduce static analysis for XML access-control. Given an access-control policy, query expression, and an optional schema, static analysis determines if this query expression is guaranteed not to access elements or attributes that are hidden ...

Keywords: Access control, XML, XPath, XQuery, automaton, query optimization, schema, static analysis, value-based access control, view schema

9 An analysis of XML database solutions for the management of MPEG-7 media descriptions



Utz Westermann, Wolfgang Klas

December 2003 **ACM Computing Surveys (CSUR)**, Volume 35 Issue 4

Publisher: ACM Press

Full text available: [pdf\(448.76 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

MPEG-7 constitutes a promising standard for the description of multimedia content. It can be expected that a lot of applications based on MPEG-7 media descriptions will be set up in the near future. Therefore, means for the adequate management of large amounts of MPEG-7-compliant media descriptions are certainly desirable. Essentially, MPEG-7 media

descriptions are XML documents following media description schemes defined with a variant of XML Schema. Thus, it is reasonable to investigate current ...

Keywords: MPEG-7, XML database systems, multimedia databases

10 Accelerating XPath evaluation in any RDBMS



Torsten Grust, Maurice Van Keulen, Jens Teubner

March 2004 **ACM Transactions on Database Systems (TODS)**, Volume 29 Issue 1

Publisher: ACM Press

Full text available: pdf(781.01 KB) Additional Information: [full citation](#), [appendices and supplements](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

This article is a proposal for a database index structure, the *XPath accelerator*, that has been specifically designed to support the evaluation of XPath path expressions. As such, the index is capable to support *all* XPath axes (including ancestor, following, preceding-sibling, descendant-or-self, etc.). This feature lets the index stand out among related work on XML indexing structures which had a focus on the child and descendant axes only. The index has been designed with a close ...

Keywords: Main-memory databases, XML, XML indexing, XPath

11 Access control: XML access control using static analysis



Makoto Murata, Akihiko Tozawa, Michiharu Kudo, Satoshi Hada

October 2003 **Proceedings of the 10th ACM conference on Computer and communications security CCS '03**

Publisher: ACM Press

Full text available: pdf(357.99 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Access control policies for XML typically use regular path expressions such as XPath for specifying the objects for access control policies. However such access control policies are burdens to the engines for XML query languages. To relieve this burden, we introduce static analysis for XML access control. Given an access control policy, query expression, and an optional schema, static analysis determines if this query expression is guaranteed not to access elements or attributes that are permitted ...

Keywords: XML, XPath, XQuery, access control, automaton, query optimization, schema, static analysis

12 Flexible consistency checking



Christian Nentwich, Wolfgang Emmerich, Anthony Finkelstein, Ernst Ellmer

January 2003 **ACM Transactions on Software Engineering and Methodology (TOSEM)**, Volume 12 Issue 1

Publisher: ACM Press

Full text available: pdf(1.94 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The problem of managing the consistency of heterogeneous, distributed software engineering documents is central to the development of large and complex systems. We show how this problem can be addressed using xlinkit, a lightweight framework for consistency checking that leverages standard Internet technologies. xlinkit provides flexibility, strong diagnostics, and support for distribution and document heterogeneity. We use xlinkit in a comprehensive case study that demonstrates how design, impl ...

Keywords: CASE tools, consistency management, constraint checking, multiple

perspectives

13 Schemas and semantics: Expressiveness of XSDs: from practice to theory, there and back again



Geert Jan Bex, Wim Martens, Frank Neven, Thomas Schwentick

May 2005 **Proceedings of the 14th international conference on World Wide Web**

WWW '05

Publisher: ACM Press

Full text available: pdf(231.25 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

On an abstract level, XML Schema increases the limited expressive power of Document Type Definitions (DTDs) by extending them with a recursive typing mechanism. However, an investigation of the XML Schema Definitions (XSDs) occurring in practice reveals that the vast majority of them are structurally equivalent to DTDs. This might be due to the complexity of the XML Schema specification and the difficulty to understand the effect of constraints on typing and validation of schemas. To shed some l ...

Keywords: XML schema, expressiveness, formal model

14 XCSL tutorial



Marta Jacinto, Giovani Rubert Librelotto, José Carlos Ramalho, Pedro Rangel Henriques

August 2002 **Crossroads**, Volume 8 Issue 5

Publisher: ACM Press

Full text available: htm(67.49 KB) Additional Information: [full citation](#), [references](#), [index terms](#)

15 HydroJ: object-oriented pattern matching for evolvable distributed systems



Keunwoo Lee, Anthony LaMarca, Craig Chambers

October 2003 **ACM SIGPLAN Notices , Proceedings of the 18th annual ACM SIGPLAN conference on Object-oriented programing, systems, languages, and applications OOPSLA '03**, Volume 38 Issue 11

Publisher: ACM Press

Full text available: pdf(311.06 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In an evolving software system, components must be able to change independently while remaining compatible with their peers. One obstacle to independent evolution is the *brittle parameter problem*: the ability of two components to communicate can depend on a number of *inessential* details of the types, structure, and/or contents of the values communicated. If these details change, then the components can no longer communicate, even if the *essential* parts of the message remain ...

Keywords: HydroJ, XML, distributed systems, dynamic dispatch, object-oriented programming, pattern matching, semi-structured data, software evolution, ubiquitous computing

16 Research session 1: querying xml & semistructured data / query languages: Deciding well-definedness of XQuery fragments



Stijn Vansummeren

June 2005 **Proceedings of the twenty-fourth ACM SIGMOD-SIGACT-SIGART symposium on Principles of database systems PODS '05**

Publisher: ACM Press

Full text available:  [pdf\(232.43 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

Unlike in traditional query languages, expressions in XQuery can have an undefined meaning (i.e., these expressions produce a run-time error). It is hence natural to ask whether we can solve the well-definedness problem for XQuery: given an expression and an input type, check whether the semantics of the expression is defined for all inputs adhering to the input type. In this paper we investigate the well-definedness problem for non-recursive fragments of XQuery under a bounded-depth type system ...

17 Graphs and trees: Heuristic containment check of partial tree-pattern queries in the presence of index graphs



Dimitri Theodoratos, Stefanos Soudatos, Theodore Dalamagas, Pawel Placek, Timos Sellis
November 2006 **Proceedings of the 15th ACM international conference on Information and knowledge management CIKM '06**

Publisher: ACM Press

Full text available:  [pdf\(281.90 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The wide adoption of XML has increased the interest of the database community on tree-structured data management techniques. Querying capabilities are provided through tree-pattern queries. The need for querying tree-structured data sources when their structure is not fully known, and the need to integrate multiple data sources with different tree structures have driven, recently, the suggestion of query languages that relax the complete specification of a tree pattern. In this paper, we use a q ...

Keywords: partial tree-pattern query, query containment, tree-structured data

18 Paper session 6: XML schemas and validation: DTDs versus XML schema: a practical study



Geert Jan Bex, Frank Neven, Jan Van den Bussche
June 2004 **Proceedings of the 7th International Workshop on the Web and Databases: colocated with ACM SIGMOD/PODS 2004 WebDB '04**

Publisher: ACM Press

Full text available:  [pdf\(274.60 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

Among the various proposals answering the shortcomings of Document Type Definitions (DTDs), XML Schema is the most widely used. Although DTDs and XML Schema Definitions (XSDs) differ syntactically, they are still quite related on an abstract level. Indeed, freed from all syntactic sugar, XML Schemas can be seen as an extension of DTDs with a restricted form of specialization. In the present paper, we inspect a number of DTDs and XSDs harvested from the web and try to answer the following question ...

19 Database issues for event-based middleware: Information sharing with the Oracle database



Deiter Gawlick, Shailendra Mishra
June 2003 **Proceedings of the 2nd international workshop on Distributed event-based systems DEBS '03**

Publisher: ACM Press

Full text available:  [pdf\(177.29 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Database systems have been designed to manage business critical information and make this information accessible on request to connected clients. There is, however, an ever-increasing need to share relevant information actively with disconnected clients and/or external systems, e.g., to propagate and/or automatically react to relevant information as soon as it becomes available. Leveraging the existing database infrastructure, Oracle created a solution to this problem. The solution is state of the ...

Keywords: JMS, apply, auditing, capture, database, expression evaluation, post dating, publish/subscribe, reliable messaging, retention, rules, type system

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